sylvestris than in the adult leaf. It may, therefore, be fairly regarded as showing the beginnings of a series of mechanisms and systems which in Pinus sylvestris have reached a high development. In Taxodium we find these variant in form, in position, in development; in Pinus, constant in all these particulars.

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EXPLANATION OF PLATE XI.—The magnification figures were upon the original drawings. These having been reduced one-half, the magnification figures must be correspondingly reduced.

Fig. 1. A. Single leaf of T. distichum in position. B. Leafy branchlet, with its crowded, 2-ranked, linear leaves.

Fig. 2. Cross section of leaf of T. distichum, showing the three regions of which the leaf is composed, distribution of strengthening cells, and position of resin duct.

Figs. 3, 4, and 5. Same, more highly magnified, showing also distribution of stomata. The three figures, as can be readily seen, are parts of the same section.

Fig. 6. Surface slice of T. distichum, showing irregular outlines of epidermal cells and depressed position of stomata.

Fig. 7. Section of stoma of T. distichum, showing depressed position, oval guard cells with heavily thickened outer walls, and large respiratory cavity.

Fig. 8. (Letter press, p. 80) Section of stoma of Pinus sylvestris.

Fig. 9. Longitudinal section, leaf of T. distichum, showing formation of apex of leaf by a continuation of epidermal cells of inner surface and modification of adjacent cells.

Fig. 10. Median vertical longitudinal section, leaf of T. distichum. *s*, superior surface; *i*, inferior surface; *st*, strengthening cells; *r*, resin duct.

Fig. 11. Resin duct of T. distichum, showing imperfect differentiation from surrounding tissues and irregular thin-walled secretory cells.

Fig. 12. Resin ducts of Pinus sylvestris.

Fig. 13. Transverse section of foliage leaf of Pinus sylvestris, showing the three leaf regions, distribution of strengthening cells and position of resin ducts.

BRIEFER ARTICLES.

A modification of the versatile anther.—In the genus Lilium, for example, it is a well-known fact that the anthers are at first erect, but as they mature the true versatile character becomes evident. An inspection of a young anther shows that the upper portion of the filament is slender, and inserted, or held in position, between the two lobes of the

anther. A little force applied in the right direction will cause this small and somewhat tapering portion of the filament to leave the canal, and the heavy anther is then suspended at the middle by the tip of the filament. By careful manipulation the original position can be restored and the anther is again upright. The release of filament takes place naturally as the two lobes dehisce and separate from each other.

In a very closely related genus, namely Tulipa, the stamens are also large, but the anthers remain upright throughout their whole existence. When the tulip stamen matures and the pollen is exposed along the two sutures, the flat anther has a twist in it so that the widest diameter at the tip stands at right angles to that of the base. Owing to its large size, its breadth and narrowness, and peculiar attachment to the filament, the anther may be turned upon its long axis by any slight breeze or by the bodies of visiting insects. This attachment is a long pivot which extends upward in the center of the anther for a distance and is held in place by tough fibres at its tip. So elastic is this tip that the anther may be turned several times upon its long axis before it will become detached from the hard peg-like extremity of the filament.

The structure for facilitating the dispersion of pollen in the tulip anther is not unlike what it would be in the lily if, instead of becoming strictly versatile, the filament tip was continued in its "pocket" and the anther was free to turn upon this upright point.—Byron D. Halsted, *Rutgers College.*

The winter leaves of Corydalis glauca and C. flavula.—Says Curtis (*Bot. Magazine*, 1792) referring to the Linnæan *Fumaria sempervirens*: "The term *sempervirens* originated in the description of it given by Cornutus (*Fumaria siliquosa sempervirens* Cat. Canad. 57 t. 57); the impropriety of calling an annual plant an *evergreen* has appeared to us too glaring to be continued; we have thought the promotion of science required a change in the name, and have therefore altered it to that of *glauca*." When Pursh removed the plant to *Corydalis* he made it *Corydalis glauca*. As an author who places an old species in a new genus is not bound under the canons to retain the old name, it may be in order for those who sympathize with Curtis's reasons for changing the Linnæan name to give it another, for *glauca* is no more characteristic than *sempervirens*. Certainly some forms of *C. aurea*, especially Rocky Mountain forms, are more glaucous than forms of *C. glauca* ever are. If we may change names because they are not in accord with the terms used in describing the plant, how will the list of synonyms swell!

The object of this note is to suggest whether, after all, Cornutus might not have more reason than Curtis supposed for using the term *sempervirens* in connection with this plant. Last January I spent the greater part of a day among the pine-crowned hills of the Allegheny range, near Lewistown in Central Pennsylvania. It had not been much